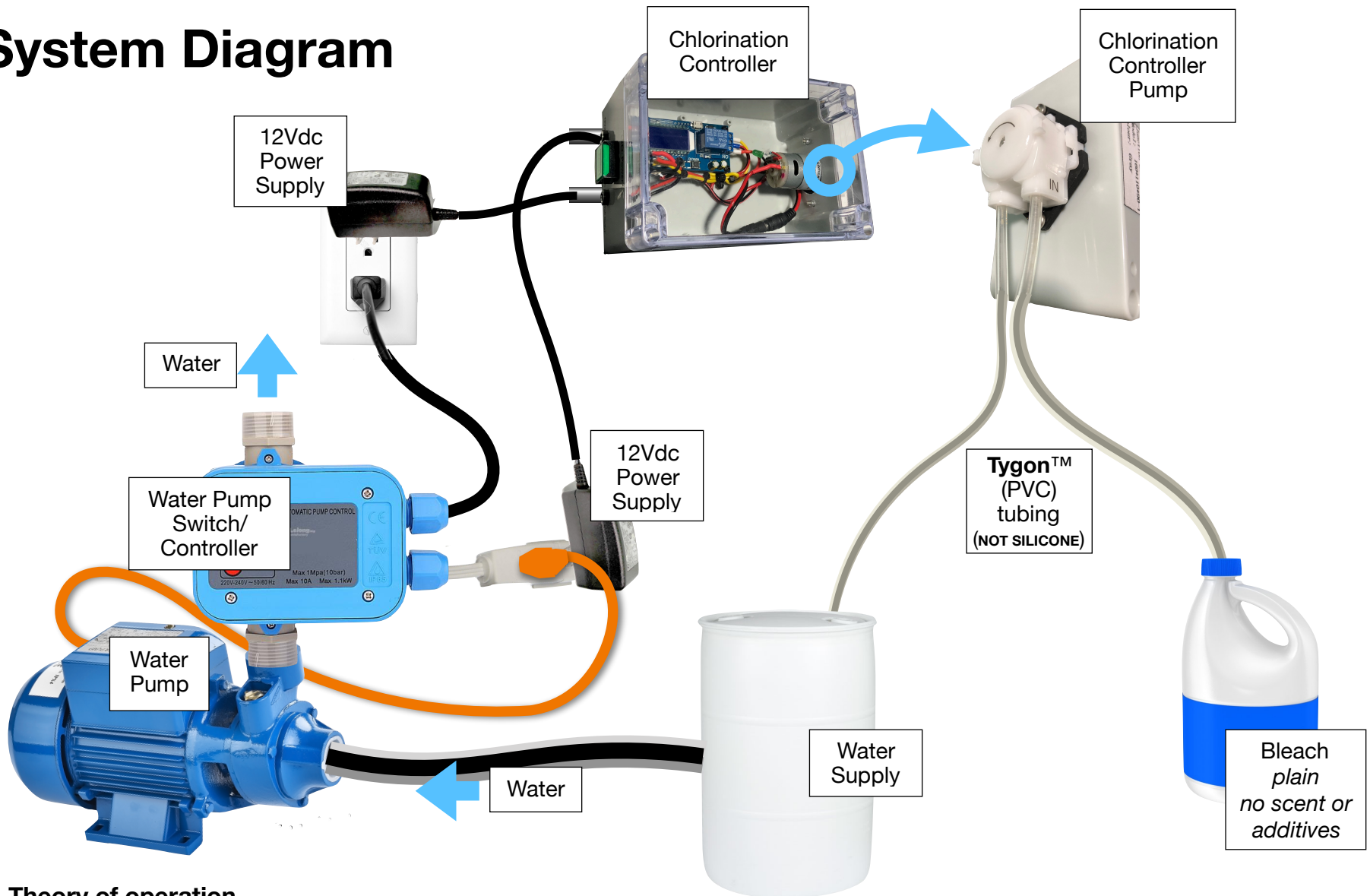


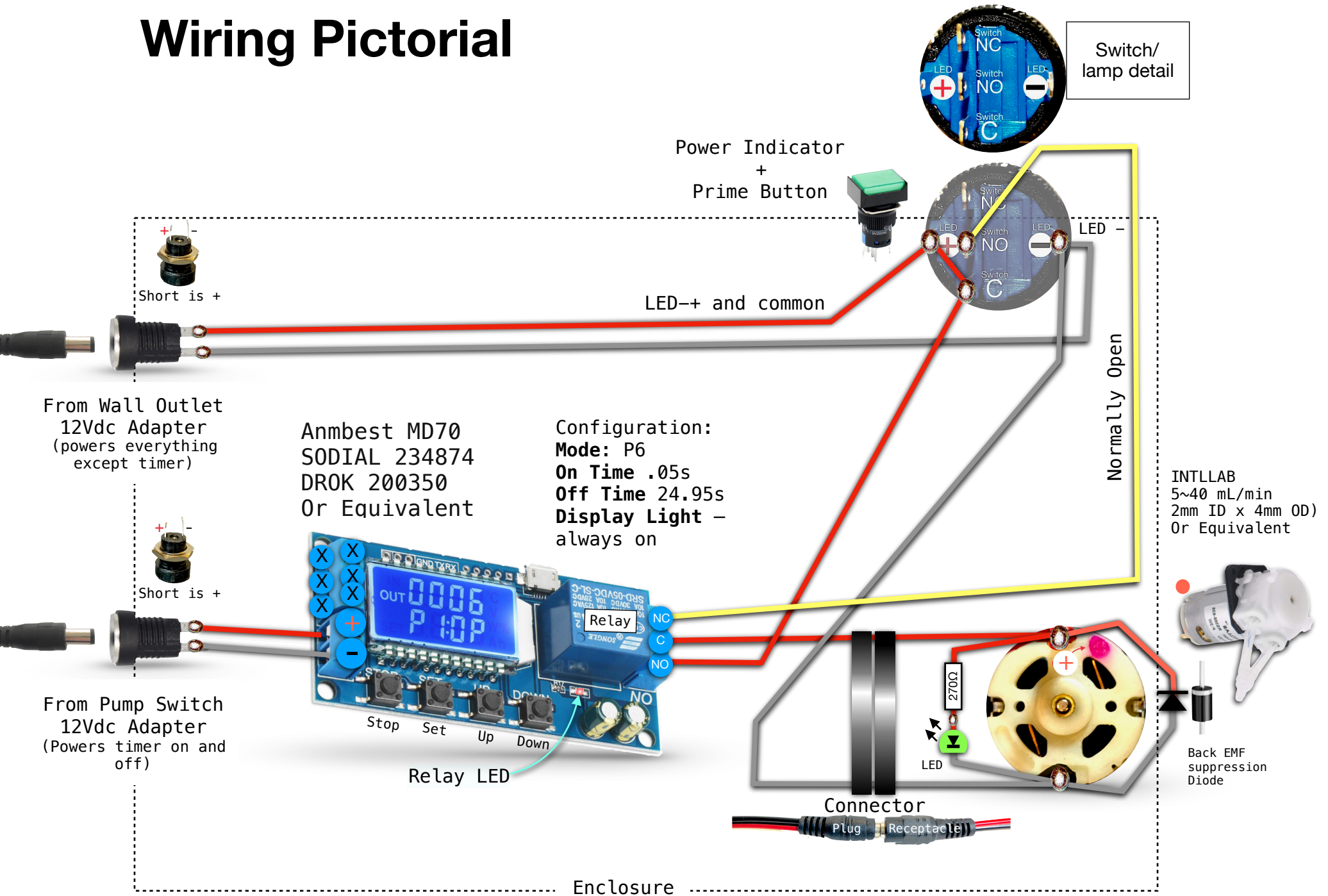
System Diagram



Theory of operation

- When water pump is switched on, power is applied to “12 Vdc from pump” input to chlorinator controller.
- Chlorinator timer pulses peristaltic chlorine pump so long as water pump is running.
- Adjust ratio of timer “OP” to “CL” time and total cycle time (OP+CL) to adjust chlorination rate.
 - Longer OP time -> more chlorine.
 - Shorter CL time -> more chlorine

Wiring Pictorial



Adjusting the chlorination rate

The chlorination rate is adjusted by changing the “OP” time, the “CL” time, or both.

The **OP** time determines how much bleach is added for each cycle of the timer, and the **CL** time determines how long the overall cycle is. The cycle *repeats* as long as the *pump runs*.

Changing the **OP** time will generally have a greater effect than changing the **CL** time.

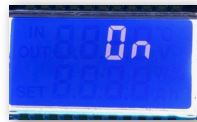
- To **increase** the chlorination rate, *increase* the OP time and/or *decrease* the CL time.
- To **decrease** the chlorination rate, *decrease* the OP time and/or *increase* the CL time.

First, swap **wall outlet** and **pump** plugs on side of controller box to provide continuous timer power. *Then*:

1. **Long press** (3 Sec+) **Set** button to enter **Set** mode.
2. Use **Up/Down** buttons to set **P** mode **6**.
3. Short press **Set** button to advance to OP set mode.
4. Press **Up/Down** buttons to set desired OP time.
5. Short press **Set** button to advance to CL set mode.
6. Press **Up/Down** buttons to set desired CL time.
7. **Long Press** (3S+) **Set** button to:
 - Save setting *and*
 - Begin timer operation.

If timer is *running (counting down)*, but relay and red LED are not being activated during OP time:

Short press **Stop** button and *repeat* until display **flashes**:



Don't forget to swap the plugs back when you are done!



When setting the OP/CL times, you can change the decimal point location by repeatedly *short*-pressing the **Stop** button. The display will cycle through the following options:

XXXX - whole seconds 1-9999 seconds
XXX.X - 0.1-999.9 seconds
XX.XX - 0.01-99.99 seconds
X.X.X.X - Whole minutes 1-9999 minutes

Timer Setting instructions

Terminology

Long press:
Press button for more than 3 seconds.

“Deactivate” — relay coil **not energized**, N.C. contact connected to Common.
“Activate” — relay coil **energized**, N.O. contact connected to Common.

“OP”: ACTIVATE time; (Relay driven, red LED on)
N.C. disconnected (OPen) from Common,
N.O. contact connected to Common.

“CL”: DEACTIVATE time; (Relay not driven, red LED off)
N.C. connected (CLosed) to Common,
N.O. contact disconnected from common.

“LOP”: Number of cycles.Range is 1-9999 times.
'----' means unlimited loop.

Timer Modes:

P1:Relay will activate for time OP after get trigger signal and then relay deactivated;
The input signal is invalid if get trigger signal again during delay time OP.

P2:Relay will activate for time OP after get trigger signal and then relay deactivated;
Module will restart delay if get trigger signal again during delay time OP.

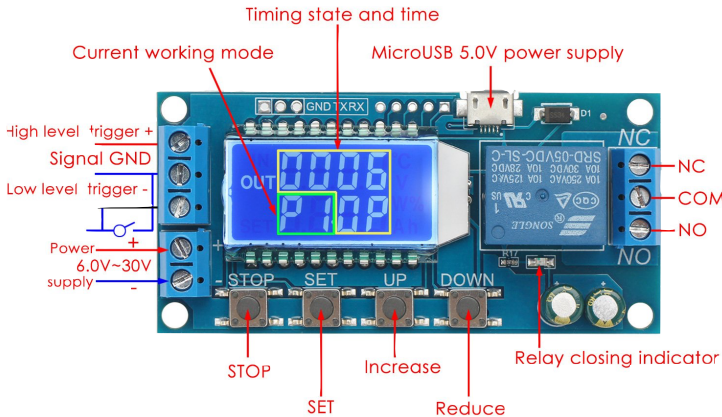
P3:Relay will activate for time OP after get trigger signal and then relay deactivated;
Module will reset and stop timing if get trigger signal again during delay time OP.

P4:Relay will deactivate for time CL after get trigger signal and then relay activates for time OP and then relay deactivates.

P5:Relay will activate for time OP after get trigger signal and then relay deactivates for time CL and then loops the above action.
Module will reset and stop timing and deactivates if get trigger signal again during loops.
The number of cycles (LOP) can be set.

P6:Relay will activate for time OP after power on without get trigger signal and then relay deactivate for time CL and then loops the above action.
The number of cycles (LOP) can be set.

P7:Signal hold function.Reset delay time and relay activates if keep get trigger signal.
Relay deactivates when the signal disappears.
Reset delay time when get trigger signal again during timing.



Timing range:

Continuously adjustable from 0.01 seconds to 9999 minutes.
Enter the settings interface when short press button 'STOP' in the OP / CL parameter modification interface(Flashing) to select timing range.

Pay attention to the position where the decimal point moves when the button is pressed.
Display 'XXXX'.No decimal point, the timing range is 1 second ~ 9999 seconds.
Display 'XXX.X'.The decimal point is the penultimate, timing range is 0.1 second to 999.9 seconds.
Display 'XX.XX'.The decimal point is the third last, timing range is 0.01 second to 99.99 seconds.
Display 'X.X.XX'.The decimal point is fully lit, timing range is 1 minute to 9999 minutes.

For example, if you want to set the OP to 3.2 seconds, move the decimal point to the penultimate position, LCD will display '003.2'.

Set Parameter:

- 1>.Enter set parameter menu by long press button 'SET'.
- 2>.Work mode (**P1-P7**) will flash at first set the working mode.Short press the UP/DOWN button to set the working mode.
- 3>.Short press the SET button to set (remember) the working mode and enter the system parameter settings.
- 4>.In the system parameter setting interface, short press the 'SET' button to switch the system parameters to be modified, short/long press the UP/DOWN button to modify value;

Note:Short press 'SET ' is invalid at mode P1,P2,P3,P7.

To have LCD backlight stay on:
Long press STOP and release. Repeat until display flashes:



To have LCD backlight time-out:
Long press STOP and release. Repeat until display flashes:



UART communication and parameter settings

The system supports UART data upload and parameter setting functions (TTL level);
UART: 9600, 8, 1

NO.	Command	Function
1	Read	Read the parameter setting
2	OP:XXXX	Set the minimum delay time for turn ON : 1s
3	OP:XXX.X	Set the minimum delay time for turn ON : 0.1s
4	OP:XX.XX	Set the minimum delay time for turn ON : 0.01s
5	OP:X.X.X. X	Set the minimum delay time for turn ON : 1min
6	CL:XXXX	Set the minimum delay time for turn OFF : 1s
7	CL:XXX.X	Set the minimum delay time for turn OFF : 0.1s
8	CL:XX.XX	Set the minimum delay time for turn OFF : 0.01s
9	CL:X.X.X.X	Set the minimum delay time for turn OFF : 1min
10	LP:XXXX	Number of cycles:1-9999
11	ON	Relays Enable
12	OFF	Relays Disable
13	Px	Set mode P1~P7